

pJLA604Not

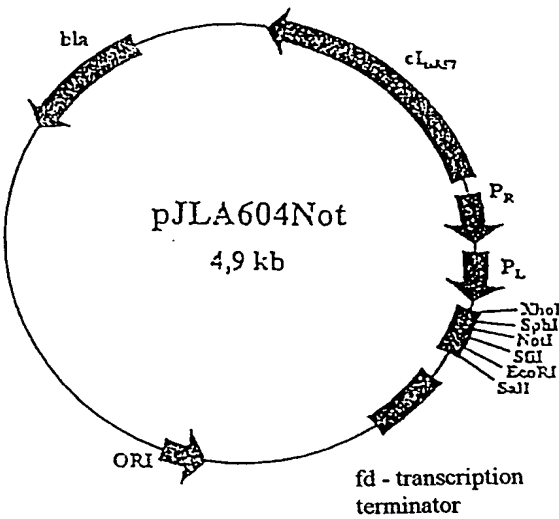


Fig. 2.1

pMSK12

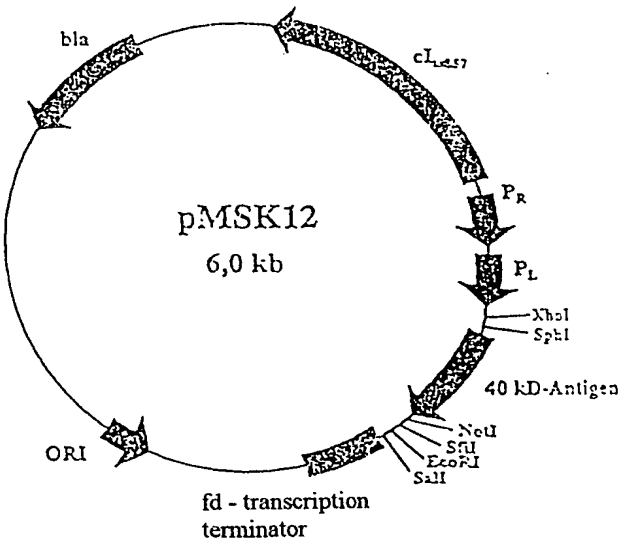


Fig. 2.2

663220-58729E60

2/10

F4 →
 gaattcccat cagcaatctt gcagattaat cgaactttct tcacactgaa ccgtacagta -16
 F1 F1+ → F2 →
 tcgagagggg taatcatgcg cgtcgggtatt ccgaccgaga ccaaaaacaa cgaattccaa 45
 ttccgggtgg ccatcacccc ggccggcgctc gcggaactaa cccgtcgtgg ccatgaggtg 105
 ctcatccagg caggtgccgg agagggctcg gctatcaccg acgcggtatt caaggcgcca 165
 ggcgcgcaac tggtcggcac cgcgcaccag gtgtgggccc acgctgattt attgctcaag 225
 gtcaaagaac ccatagcggc ggaatacggc cgcctgcgac acgggcagat cttgttcacg 285
 ttcttgcat tggccgctc acgtgcttc accgatgcgt tgttggtatc cggcaccacg 345
 tcaattgcct acgagaccgt ccagaccgcc gacggcgcac taccctgct tggcccgatg F5 → 405
 F5 → RM
 agcgaagtcg ccggtcgact cgcgcgccag gttggcgctt accacctgat gcgaacccaa 465
 gggggcccg gttgtctgat gggcggggtg cccggcgctg aaccggccga cgtcgtggtg 525
 atcgcgccg gcaccgccgg ctacaacgca gccgcgctg ccaacggcat gggcgcgacc 585
 gttacgggtc tagacatcaa catcgacaaa cttcggcaac tcgacgccga gttctcgggc 645
 cggatccaca ctgcctactc atcgccctac gagctcgagg gtgccgtcaa acgtgccgac 705
 F6 → R7 → R6 →
 ctgggtgattg gggccgtcct ggtgccaggc gccaaaggcac ccaattagt ctcgactca 765
 cttgtcgcgc atatgaaacc aggtgcggtg ctgggtgata tagccatcga ccaggccggc 825
 tgtttcgaag gctcagacc gaccacctac gaccaccgga cgttcgcccgt gcacgacacg 885
 ctgttttact gcgtggcgaa catgcccgcg tcggtgccga agacgtcgac ctacgcgctg 945
 accaaccgga ccatgccgta tgtgctcgag cttgccgacc atggctggcg ggcggcgctg 1005
 cggtcgaatc cggcaactagc caaaggtctt tcgacggcgg aagggcggtt actgtccgaa R3 1065
 R3 ← R1 → R2 →
 cgggtggcca ccgacctggg ggtgccgttc accgagcccg ccagcgtgct gccctgactc 1125
 R5 R4
 tcggccgctc gttacgccga gcacacgtcg ggagtaaggg aagcgtatgat gtcggccgcg 1185

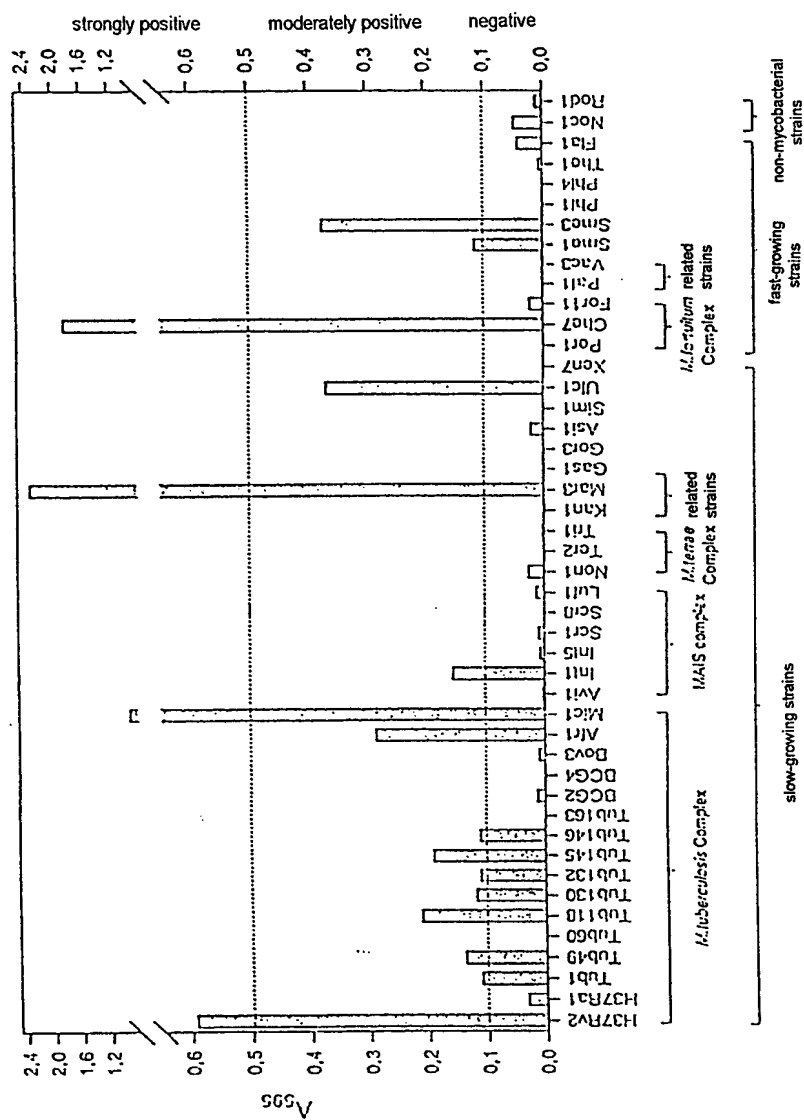
Fig. 2.3

66220-5942650

Name	Sequence	Orientation
AlaDH-F1	5'-ATGCGCGTCGGTATTCCG-3'	forward
AlaDH-F1+	5'-GCGCGTCGGTATTCCGACCG-3'	forward
AlaDH-F2	5'-GAGACCAAAAACAACGAA-3'	forward
AlaDH-F4	5'-GAATTCCCATCAGCAATCTTGCAGA-3'	forward
AlaDH-F5	5'-GCCCCGATGAGCGAAGTC-3'	forward
AlaDH-F6	5'-GGGGCCGTCCTGGTGCC-3'	forward
AlaDH-F7	5'-GACGTCGACCTACGCGCTGAC-3'	forward
AlaDH-R1	5'-CTCGGTGAACGGCACCCC-3'	reverse
AlaDH-R2	5'-GGCCAGCACGCTGGCGGG-3'	reverse
AlaDH-R3	5'-CACCCGTTCCGACAGTAA-3'	reverse
AlaDH-R4	5'-CGCGGCCGACATCATCGC-3'	reverse
AlaDH-R5	5'-GGCCGACATCATCGCTTCCC-3'	reverse
AlaDH-R6	5'-CGAGACTAATTTGGGTGCCTTGGC-3'	reverse
AlaDH-R7	5'-ATTTGGGTGCCTTGGC-3'	reverse
AlaDH-RM	5'-GGCGGCGAGTCGACCGGC-3'	reverse

Fig. 2.5

4/10



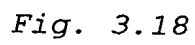
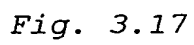
[illegible]

Fig. 3.19

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40kD	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCACA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1
Tub1	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCACA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1
H37Rv	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCATA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1
H37Ra	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCATA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1
BCG4	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCACA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1
BCG2	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCACA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1
Bov3	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCACA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1
Afr1	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCACA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1
Mic1	-60	ATCTTGCAGA	TTAATCGAAC	TTTCTTCACA	CTGAAGCGTA	CAGTATCGAG	AGGGGTAAATC	-1

Start		*****						
40kD	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACGAAT	TCCAAATCCG	GSTGGCCATC	60
Tub1	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACG---	---AATTCCG	GSTGGCCATC	60
H37Rv	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACG---	---AATTCCG	GSTGGCCATC	60
H37Ra	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACG---	---AATTCCG	GSTGGCCATC	60
BCG4	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACG---	---AATTCCG	GSTGGCCATC	60
BCG2	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACG---	---AATTCCG	GSTGGCCATC	60
Bov3	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACG---	---AATTCCG	GSTGGCCATC	60
Afr1	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACG---	---AATTCCG	GSTGGCCATC	60
Mic1	1	ATGCGCGTCG	GTATTCCGAC	CGAGACCAAA	AACAACG---	---AATTCCG	GSTGGCCATC	60

40kD	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120
Tub1	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120
H37Rv	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120
H37Ra	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120
BCG4	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120
BCG2	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120
Bov3	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120
Afr1	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120
Mic1	61	ACCCCGGCCG	GCGTCGCGGA	ACTAACCCT	CGTGGCCATG	AGGTGCTCAT	CCAGGCAGGT	120

40kD	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180
Tub1	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180
H37Rv	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180
H37Ra	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180
BCG4	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180
BCG2	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180
Bov3	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180
Afr1	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180
Mic1	121	GCCGGAGAGG	GCTCGGCTAT	CACCGACGCG	GATTTCAAGG	CGGCAGGCGC	GCAACTGGTC	180

40kD	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240
Tub1	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240
H37Rv	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240
H37Ra	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240
BCG4	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240
BCG2	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240
Bov3	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240
Afr1	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240
Mic1	181	GGCACCGCCG	ACCAGGTGTG	GGCCGACGCT	GATTTATTGC	TCAAGGTCAA	AGAACCGATA	240

7/10

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40kD	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	CAGATCTTGT	TCACGTTCTT	GCATTTGGCC	300
Tub1	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	CAGATCTTGT	TCACGTTCTT	GCATTTGGCC	300
H37Rv	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	CAGATCTTGT	TCACGTTCTT	GCATTTGGCC	300
H37Ra	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	CAGATCTTGT	TCACGTTCTT	GCATTTGGCC	300
BCG4	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	C-GATCTTGT	TCACGTTCTT	GCATTTGGCC	300
BCG2	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	C-GATCTTGT	TCACGTTCTT	GCATTTGGCC	300
Bov3	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	C-GATCTTGT	TCACGTTCTT	GCATTTGGCC	300
Afr1	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	CAGATCTTGT	TCACGTTCTT	GCATTTGGCC	300
Mic1	241	GCGGCGGAAT	ACGGCCGCCT	GCGACACGGG	CAGATCTTGT	TCACGTTCTT	GCATTTGGCC	300

40kD	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360
Tub1	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360
H37Rv	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360
H37Ra	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360
BCG4	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360
BCG2	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360
Bov3	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360
Afr1	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360
Mic1	301	GCGTCACGTG	CTTGCAACCGA	TGCGTTGTTG	GATTCCGGCA	CCACGTCAAT	TGCCTACGAG	360

40kD	361	ACCGTCCAGA	CCGCCGACGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420
Tub1	361	ACCGTCCAGA	CCGCCGACGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420
H37Rv	361	ACCGTCCAGA	CCGCCGACGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420
H37Ra	361	ACCGTCCAGA	CCGCCGACGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420
BCG4	361	ACCGTCCAGA	CCGCCGACGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420
BCG2	361	ACCGTCCAGA	CCGCCGAAGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420
Bov3	361	ACCGTCCAGA	CCGCCGAAGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420
Afr1	361	ACCGTCCAGA	CCGCCGACGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420
Mic1	361	ACCGTCCAGA	CCGCCGACGG	CGCACTACCC	CTGCTTGCCC	CGATGAGCGA	AGTCGCCGGT	420

40kD	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480
Tub1	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480
H37Rv	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480
H37Ra	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480
BCG4	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480
BCG2	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480
Bov3	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480
Afr1	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480
Mic1	421	CGACTCGCCG	CCCAGGTTGG	CGCTTACCAC	CTGATGCGAA	CCCAAGGGGG	CCGCGGTGTG	480

40kD	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540
Tub1	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540
H37Rv	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540
H37Ra	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540
BCG4	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540
BCG2	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540
Bov3	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540
Afr1	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540
Mic1	481	CTGATGGGCG	GGGTGCCCGG	CGTCGAACCG	GCCGACGTCC	TGGTGATCCG	CGCCGGCACC	540

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8/10

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40kD	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600
Tub1	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600
H37Rv	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600
H37Ra	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600
BCG4	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600
BCG2	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600
Bov3	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600
Afr1	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600
Mic1	541	GCCGGCTACA	ACGCAGCCCC	CATCGCCCAAC	GGCATGGGCG	CGACCGTTAC	GGTTCTAGAC	600

40kD	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660
Tub1	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660
H37Rv	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660
H37Ra	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660
BCG4	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660
BCG2	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660
Bov3	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660
Afr1	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660
Mic1	601	ATCAACATCG	ACAACTTCG	GCAACTCGAC	GCCGAGTTCT	GCGGCCGGAT	CCCACTCGC	660

40kD	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720
Tub1	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720
H37Rv	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720
H37Ra	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720
BCG4	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720
BCG2	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720
Bov3	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720
Afr1	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720
Mic1	661	TACTCATCGG	CCTACGAGCT	CGAGGGTGCC	GTCAAACGTG	CCGACCTGCT	GATTGGGGCC	720

40kD	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780
Tub1	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780
H37Rv	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780
H37Ra	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780
BCG4	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780
BCG2	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780
Bov3	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780
Afr1	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780
Mic1	721	GTCCTGGTGC	CAGGCGCCAA	GGCACCCAAA	TTAGTCTCGA	ATTCACTTGT	CGCGCATATG	780

40kD	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840
Tub1	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840
H37Rv	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840
H37Ra	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840
BCG4	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840
BCG2	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840
Bov3	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840
Afr1	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840
Mic1	781	AAACCAGGTG	CGGTACTGGT	GGATATAGCC	ATCGACCAGG	GCGGCTGTTT	CGAAGGCTCA	840

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9/10

40kD	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900
Tub1	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900
H37Rv	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900
H37Ra	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900
BCG4	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900
BCG2	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900
Bov3	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900
Afr1	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900
Mic1	841	CGACCGACCA	CCTACGACCA	CCCGACGTTT	GCCGTGCACG	ACACGCTGTT	TTACTGCGTG	900

40kD	901	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960
Tub1	901	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960
H37Rv	901	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960
H37Ra	90	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960
BCG4	90	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960
BCG2	901	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960
Bov3	901	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960
Afr1	901	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960
Mic1	901	GCGAACATGC	CCGCCTCGGT	GCCGAAGACG	TGCACCTACG	CGCTGACCAA	CGCGACGATG	960

40kD	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020
Tub1	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020
H37Rv	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020
H37Ra	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020
BCG4	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020
BCG2	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020
Bov3	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020
Afr1	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020
Mic1	961	CCGTATGTGC	TGCAGCTTGC	CGACCATGSC	TGGCGGGCGG	CGTGCCGGTC	GAATCCGGCA	1020

40kD	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080
Tub1	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080
H37Rv	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080
H37Ra	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080
BCG4	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080
BCG2	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080
Bov3	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080
Afr1	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080
Mic1	1021	CTAGCCAAAG	GTCTTTTCGAC	GCACGAAGGG	GCGTTACTGT	CCGAACGGGT	GGCCACCGAC	1080

40kD	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140
Tub1	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140
H37Rv	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140
H37Ra	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140
BCG4	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140
BCG2	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140
Bov3	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140
Afr1	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140
Mic1	1081	CTGGGGGTGC	CGTTCACCGA	GCCCGCCAGC	GTGCTGGCCT	GA	Stop	1140

[illegible]

Fig. 3.19